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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/752,672	01/08/2004	Chih-Hsiao Chen	CHEN3615/EM	4456

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EXAMINER

BOLDA, ERIC L

ART UNIT	PAPER NUMBER
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3663

DATE MAILED: 11/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/752,672

Applicant(s)

CHEN, CHIH-HSIAO

Examiner

Eric Boldt

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 80-109 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 80-82, 87-90 is/are rejected.
- 7) ☒ Claim(s) 83-86 and 90-109 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of species I A 1 a i AA in the reply filed on Oct. 3, 2005 is acknowledged. Applicant's amended claims in the reply filed on Oct. 3, 2005 are acknowledged. The traversal is on the ground(s) that some of the species indicated by the examiner are not distinct. The Examiner withdraws the restriction between species a and b, and between AA, BB and CC *only*. The other species restrictions are maintained.

The requirement is still deemed proper and is therefore made FINAL.

Drawings

2. The amended drawings were received on Oct. 3, 2005. These drawings are accepted.

Claim Objections

3. Claim 88 is objected to because of the following informalities: "reflections" should be "reflectivities". Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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5. Claims 80, 81, 87, 88, and 89 are rejected under 35 U.S.C. 102(e) as being anticipated by Dijaili (US Pat. No. 6,512,629).

With regard to claim 80, Dijaili discloses in Figs. 5A and 5B an optical amplifier having an input facet and output facet, comprising a gain medium (active layer (130)) defining an amplifier axis, and a plurality of gain clampers (110A, B, etc) disposed along the amplifier axis. The carrier density distribution of the optical amplifier is controlled by the gain clampers, and the carrier density distribution substantially declines from the input facet to the output facet (see Fig. 10C). It is inherent in the operation of the optical amplifier that for particular values of the input optical signal, the resulting local saturation photon density is larger than the local photon density of the amplified optical signal.

With regard to claim 81, the optical amplifier of Dijaili can be operated so that the carrier density distribution is at a level close to or below the local saturation threshold carrier density along the amplifier axis. The clause "controlled to" is essentially a statement of intended or desired use. Thus, these claims as well as other statements of intended use do not serve to patentably distinguish the claimed structure over that of the reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re Finsterwalder, 168 USPQ 530; In re Casey, 512 USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2nd 1647.

See MPEP § 2114 which states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ 2nd 1647

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Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.

Apparatus claims cover what a device is not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

With regard to claim 87, each gain clumper is constructed as a laser cavity defined by a pair of off-axis mirrors ((514) and bottom facet of semiconductor) disposed beside the gain medium, facing each other.

With regard to claim 88, the reflectivities (and hence the products of reflectivities) of the mirror pairs increase toward the output facet. (This is inherent in the increasing number of layers in the Bragg gratings, see (512) in Fig. 5A).

With regard to claim 89, in 8th col. lines 37-44, Dijaili discloses that additional loss structures are introduced into the cavities formed by each pair of mirrors, thereby making the clamped local carrier densities of the gain medium decline.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

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3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claim 82 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dijaili as applied to claim 80 above and further in view of Kim et al. (US Pat. No. 6,865,020).

With regard to claim 82, Dijaili discloses all the features of the claims except that each of the gain claspers is constructed by grating structures arranged in the amplifier axis. However, Kim et al. disclose in Fig. 4 an optical amplifier with a pair of grating structures (42) along the amplifier axis. The gratings are formed so as to result in a declining carrier density distribution from the input face to the output face. It would have been obvious to one skilled in the art (e. g. an optical engineer) to combine the pair of gratings of Kim et al. repeatedly as in the amplifier of Dijaili for the purpose of decreasing four-wave mixing noise.

Note that the citations made herein are done so for the convenience of the applicant; they are in no way intended to be limiting. The prior art should be considered in its entirety.

Allowable Subject Matter

8. Claims 83-86 and 90-109 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Shinada, Schimpe, Dijaili et al., Woodward, Morito, Barenburg et

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al., Kim et al. disclose gain-clamped semiconductor amplifiers; Tiemeijer et al. disclose a semiconductor optical amplifier with gain control.

10. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric Bolda whose telephone number is 571-272-8104.

The examiner can normally be reached on M-F from 8:30am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Jack Keith, can be reached on 571-272-6878. Please note the fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EB

Eric Bolda

Asst. Examiner

Mark Hellner

Primary Examiner

Mark Hellner